

Research on the Relationship between Algorithm Technology and Audience from the Perspective of Philosophy of Technology

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Abstract— With the advent of the era of smart media, mobile Internet technology have continuously developed and upgraded. Intelligent algorithm technology gradually become the underlying logic for new platforms, undertaking the task of the collection and distribution, while the audience have become the important node of algorithm technology, which has an important role and influence on the audience's cognition, behaviors, abilities. This article focuses on the relationship between algorithmic technology and audience with the perspective of philosophy of technology. From the perspective of engineering, algorithm technology can empower individuals, reconstruct their cognition, and fully extend people's subjective initiative. While from the perspective of humanism, this surface structural duality makes the algorithm technology constantly suppress the audience, so as to achieve the goal of gradually controlling the audience. From the perspective of philosophical differentiation of technology, the relationship between algorithm technology and the audience is a continuous cycle of enabling and destroying humanity, which requires coordination and improvement both internally and externally.

Keywords— Philosophy of technology; Algorithm; Engineering; Humanism.

I. INTRODUCTION

In the Internet era of web 3.0, whether in business, education or other social fields, artificial intelligence technology has been widely used and valued, even the technology itself has changed the traditional factors of production and operation. As a new information distribution mode, the intelligent algorithm technology has spread characteristics and mechanism of continuous learning, which affects people's learning, entertainment, and even bring more the possibility and creativity of all aspects of life. This distribution model is used personal portrait as the main reference, and regard the interaction between the user and the communicators as the result of technology developing, at the meantime the algorithm technology is more instrumental for media platform. As early as in 2016, according to the "Special Research Report on China Mobile Information Distribution Market" issued by the third-party monitoring agency analysis International, the distributed algorithm is becoming the main approach to distributed online news. In the domestic information market, the content pushed by the algorithm has exceeded 50%. [1] While Among various enterprises, algorithm technology has been recognized by enterprises and platforms in the society

under the empowerment of technical elements, and it has brought economic and social benefits to the platform from the collection of information to the distribution, whether the "guess you like" sector in Taobao or Tiktok's immersive environment, the application of the algorithm model has become the bottom pillar for the communicators to carry out accurate and efficient positioning, also rapid production and distribution. For the audience, algorithm technology is an important means for people to recognize and contact their favorite fields, but it also brings the ethic problem of instrumental rationality that can affect users. This article will introduce the viewpoint of philosophy of technology, analyze the interwoven relationship between algorithm technology and audience from the perspective of philosophy of technology, and point out the nature and development trend of its relationship.

II. THE RELATIONSHIP BETWEEN AUDIENCE AND TECHNOLOGY BASED ON ALGORITHM TECHNOLOGY

Technology is a tool, which only shows its instrumental side from the internal logic of technology, while technology itself should be considered in the interaction between man and nature. [2] The internal logic of algorithm technology has distinct instrumental and practical value, and its interaction with the audience is the extension of its value as a tool. The value orientation of technology itself will affect the audience's cognition and behavior, also the audience's preference and feedback will make the technology be reprocessed or even continuously optimized.

The modern scientific and technological revolutions in the western world have changed the course of history and philosophy as well. First came the philosophy of science, then the philosophy of technology. [3] Philosophy of technology emphasizes the discussion and research on the nature of technology. In "Introduction to Philosophy of Technology", Meacham divides the study of philosophy of technology into two traditions: engineering and humanism. He believes that "philosophy of technology is conceived like a pair of twins, and even shows a considerable degree of sibling competition in the womb." [4] The relationship between the algorithm technology and the audience also shows different characteristics in this different perspective. Under the engineering perspective, the technology is as a basis to explain

the world, even the degree of advanced technology and the development of the world are closely linked with it. In the interaction between the algorithm recommendation technology and the audience, it is not difficult to see that the algorithm transmits valuable information to the audience by constructing a complete personal profile, and optimizes its complicated matters in many fields, even in the life and society. Instead, under the humanistic perspective, the significance of technology has more significance of research than the effects brought by technology itself. Intelligent algorithms are more of a destructive behavior. The audience's dependence on the distribution of intelligent algorithms can only make them fascinated by the deconstruction and reconstruction, of social information delivered by algorithms. Eventually it makes audience fall into a closed "information cocoon" where their individual cognition and consciousness are controlled and exploited.

III. THE RELATIONSHIP BETWEEN ALGORITHM TECHNOLOGY AND AUDIENCE FROM THE PERSPECTIVE OF ENGINEERING

The philosophy of technology in engineering shows the great function of technology and the importance of technological invention, which regards technological invention as an enjoyable experience similar to artistic creation, and even believes that technology can solve the ecological and humanistic crisis faced by the whole society. [5] Algorithmic technology has brought great changes and possibilities to life, in which the audience is just like enjoying themselves in artistic activities. Whether it is the reconstruction of cognition or the expansion of ability, the relationship between the audience and technology has gradually become close, and even become an embedded communication and interaction system.

1. Construct individual cognition under "private customization" of interest domain

In the era of mass communication, the personal characteristics of information recipients are almost ignored, meanwhile, all the contents that can be matched with standardization and scale can really have "market significance". [6] With the rapid development and popularization of digital technology and intelligent media, the audience in the traditional way has become a new node of communication, and the concept of user has largely replaced the original meaning of audience. Under the power endowed by intelligent algorithm technology, the individual needs of the audience begin to be highlighted in the standardized and large-scale market, forming a long tail economy that can compete with the mainstream market economy. In this background, the communication and feedback behavior of the audience gradually be the key of the information communication system.

The emergence of personalized information service is an inevitable result of the information overload era, and also a new means to respect and satisfy the information rights of individuals. [7] Intelligent algorithm technology uses the user's personal portrait as a reference for communication activities, and accurately pushes information in areas that

make them overjoyed, and through the user's real-time operation and timely feedback, it provides a better basis for the next communication activity. In such a cyclic system, algorithm technology provides users with personalized "private customization" services, with in-depth mining of information and content in their areas of interests, so the individual "selective psychology" is strengthened and consolidated, and the goal of networked logic is no longer limited to obtaining audiences, but based on the multi-practical logic of daily life based on spatial orientation. [8] The individual's cognitive structure is constructed in the "My Daily" which is first mentioned by Negroponte, and begins to guide the cognitive and behavioral patterns in various fields in real life. Practices and algorithm technologies in daily life are intertwined and connected, then the individual's cognition is constantly reshaped under this logic.

2. Enable the audience to control the technology under the "mutual subject"

The medium is an extension of the human body, moreover the technology provided in the medium undoubtedly makes the range of human body reach wider and wider. The big data transmission mode of algorithm technology enables individuals to be fully extended. In this mode, users' interests and hobbies have becoming the key factor of whether information can reach the audience and form immediate feedback. Whenever in the short video recommended platform, or in online shopping software, intelligent algorithm technology has become the enterprises in the underlying technology products. In the infinitely surging information flow, the idea of "recipient first" is valued. Individuals rely on high-efficiency, low-latency digital media to enable algorithms or other technologies to provide better services and conveniences for themselves. The change of behavior and the choice of oneself according to interest make the algorithm technology dynamically change. For the audience, algorithm's position is gradually equal to themselves, and for the technology, the audience has become more precise and not to be ignored.

It is not difficult to find that in the rapidly developing digital era, intelligent algorithm recommendation has already possessed the conditions and characteristics of tool rationality and science and technology rationality. [9] Instrumental rationality, the purpose of technology is outstanding. Under the mechanism of extremely strong tooling, the ultimate point of intelligent algorithms is to continuously expand the ability of individual audiences at the node of shaping the audience. At the same time, the technological factors brought about by technology have brought more motivation and opportunities for the audience to learn and practice. The audience can be transformed into users, actively participate in the use of technology, and criticize the technology even propose improvements and suggestions. So as to achieve the purpose of controlling technology, the individual's subjective initiative can be highlighted in the digital age of technological bombardment and information surge.

IV. THE RELATIONSHIP BETWEEN ALGORITHM TECHNOLOGY AND AUDIENCE FROM THE HUMANISTIC PERSPECTIVE

The philosophy of technology in engineering focuses on analyzing technology from the inside, which reflects the logic of technology itself. While the humanistic philosophy of technology focuses on the perspective and explanation of technology from the outside, showing the interaction between technology and social culture. [10] The external explain, more or less makes the significance of the technology itself has been covered, the critical perspective occupies the mainstream of the thoughts, and from the perspective of humanism, the changes given by intelligent algorithm recommendations are destroying human nature. Heidegger said that technology as a “car” will control people and make people lose contact with the outside world. The ability and thinking of the audience given by advanced technologies such as algorithms have begun to isolate the audience from society, and the relationship between technology and the audience has also begun to lean more towards technology.

1. “One-dimensional people” trapped under the “private custom” cocoon room

In “Information Utopia”, American scholar Sunstein was the first to see the disadvantages brought about by people's “selective psychology”. Accurate and effective dissemination and distribution seem to extend the audience's ability to control information, but it actually destroys it. To understand the audience's perception of real life, this perception is not a reconstruction and innovation in a positive sense, but a distortion. The audiences who are satisfied at the spiritual level are more likely to fall into the “information cocoon room” given by their interest fields. In the information of pleasing fields, the audiences are more likely to lose their overall cognition of the society.

In this universe, technology also provides great justification for man's non-freedom, and proves that it is technically impossible for man to be an autonomous man and to decide his own life. [11] In the information transmission given by the “filter bubble” carried by the intelligent algorithm technology, the audience is infinitely wrapped in the information content they like. Before the audience becomes capable of independent thinking, they are restrained by the cage of the technology, and the overall information content becomes a “luxury” besides the pleasure information. The algorithm recommendation technology puts the recommended nodes and focus on the audience. In the long run, it will make people lose their due rational judgments about the external real world, and will also lead to the rigidity of the entire society's knowledge production model. [12] The “one-dimensional people” mentioned by Marcuse are beginning to appear in the context of lack of criticism of society and the continuous stagnation of the entire social knowledge, education, economy and other fields. At the same time, the trend will continue to be solidified and built on long-term technology anesthesia and carnival under the “mime environment”.

2. The virtual “subject equality” in the algorithm black box leads to the loss of individual rights

The process of the interaction between the algorithm technology and the audience is actually just a feature of the duality of the structure that exists on the surface. The duality of structure is proposed by Giddens overcoming various “dual oppositions” in social theory. The duality of structure is expressed in that the social structure is not only constructed by the actions of actors, but at the same time, it is also a bridge through which people's actions are possible to operate. [13] However, this structural inequality of intelligent algorithms is covered by the black box of technology. The duality of the surface structure has become a disguise for the “subject equality” of the display technology and the audience, and the communicator and the audience. Habermas believes that technology is a kind of the mode of production, as the totality of tools, devices and equipment, marks the age of machines. It is also a way of organizing and maintaining social relations. It embodies dominant thinking and behavior patterns, and is a tool of control and dominance. [14] Therefore, when the audience's ability to master technology is expanded, the black box behind the algorithm is actually expanding in control and management.

The black box behind the algorithm is often to analyze data based on the interests of its own groups, companies, and political parties. Such algorithms are obviously subjective, and human factors make this technology dangerous. Such subjective values may even be attached with commercial or even political purposes. In such communication and feedback process, the individual rights of the audience are constantly transferred, and personal data and privacy are exchanged through interaction with algorithm technology, so as to provide better services for themselves.

V. IMPACT OF RELATIONSHIP CHANGES ON THE INDUSTRY AND COUNTERMEASURES

1. The overall impact of changes in the relationship between algorithm technology and audience on the industry's communication mode

According to Spence, it's easy to know all respiration that survives, the respiratory system, exists for the purpose of fulfilling some function, and those that do not fulfil their function are degraded over time. Just as technology brings to meet new needs. The relationship between algorithm technology and the audience makes the traditional communication mode more based on demand and feedback, and the rise and fall of the industry is closely related to the audience, and even the so-called users today.

Before the era of algorithm, the communication of the industry was usually carried out by some professional information transmitters for information distribution and processing. The main body of the transmitters was narrow in scope and the collection of information channels was limited. The interaction and communication between the algorithm and the audience makes the communicators in the enterprise transform from a professional person to the technology itself. The automatic and precise characteristics of the algorithm technology itself have saved manpower and costs for the distribution and publicity work of the enterprise, the information collection channels range from single, direct

human search to automatic search of individuals, relying on the different characteristics of a single audience to be transmitted to individual nodes, and bring better economic and social benefits to the communication of various companies in the industry.

But technology is a tool to use, not an individual with independent auditing and critical thinking ability. The values of algorithm technology are determined according to the concept of the enterprise, and such values are often connected and developed with business and interests, in order to obtain more social and economic benefits. Some objects will lose the opportunity to obtain new resources because the algorithm is not qualified for evaluation. [15] In today's emerging Internet companies relying on algorithm technology, Bytedance, Kuaishou Technology, etc., the rapid development and prosperity of these companies is undoubtedly an excellent case for companies to grasp the relationship between algorithm technology and audiences. Under the bonus, the industry's communication mode gradually in line with technology, the proportion of humans and machines has gradually made the machine part more prominent, which has also made the humanized part of the communication model more data-based. For enterprises, individuals become data, not live audiences. Therefore, under the automatic and accurate dissemination, samples and data have become the focus.

2. Coping measures

In the change of the communication mode of the industry, engineering and humanism should also be considered together. As far as algorithm technology is concerned, in addition to using its tools, it is also necessary to pay attention to its humanity. First of all, its users and manipulators should have a sense of social responsibility and use the "artificial + algorithm" review mechanism while using technology. In this case, Today's Toutiao CEO Zhang Yiming requires that the editor-in-chief responsibility system be implemented, and manual review and machine review should be combined to make up for the defects of algorithm and machine review. At the same time, reduce the user's "connection" time, start with interest, and use more professional, valuable, and in-depth content to enhance the platform's stickiness to users and avoid malformed forms of value communication.

Secondly, governance needs to be started from the source, which is essential for the supervision and regulation of algorithm technology itself. From the several criticism of "algorithm recommendations" of People's Daily, it can be seen that the use of algorithm recommendations requires government planning and governance, and control the companies and enterprises that use technology, and use legal means to suppress social phenomena such as algorithm discrimination and "big data killing" to protect the legitimate interests of the audience as individuals.

Although algorithm technology can bring rich and colorful information to the audience, the explosion of information will make users unable to concentrate and in-depth thinking. Therefore, the audience should cultivate their own "anti-connection" literacy and reduce the impact of the content to avoid harmful value spread and erode one's own values, maintain one's own rational logic, and at the same time

actively understand the overall social information, avoid becoming "one-dimensional people".

VI. SUMMARY

For the audience, the technology of algorithm constantly empowers the individual, reconstructs the audience's cognition and behavior, expands the individual's ability, and provides a deeper foundation for the development of society. For algorithmic technology, the communication and interaction with the audience is more based on a purpose, and the nature of its development and underlying logic require both internal and external coordination and restriction. The perspective of this relationship is viewed from a different perspective of philosophy of technology.

The division of technological philosophy is actually optimism and criticism of technology. Technological optimists have a positive attitude towards the development of technology, forming the engineering philosophy of technology. In the ever-developing information society in the digital age, the technological philosophy that rejects humanism can only be the pre-modern technological philosophy and cannot meet the requirements of the times, while the technological philosophy that rejects engineering can only be "sitting and talking" and becoming "gray theory". [16] Therefore, when looking at the relationship between algorithms and audiences, we should not only talk about the known unilateral status quo, but also see the future development trend. Algorithms and audiences are actually a process in which technology and humanities fight each other and change each other. While technology empowers, it also brings destruction. The relationship is the continuous cycle of empowering and destroying human nature and how to use and control the effect of digital technology on people is the core of the future development of technology.

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